

# W5YI

## America's Oldest Ham Radio Newsletter REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable.

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### FCC Establishes New 23-cm Wireless Communications Service Amateur Service Retains Secondary Access to 2300 to 2305 MHz

On February 19<sup>th</sup>, the FCC issued final rules to reallocate and assign the use of frequencies at 2305-2320 and 2345-2360 MHz to a new radio service to be known as the Wireless Communications Service (WCS). These bands include a 5-MHz segment that Amateur Radio had shared with the government before it was reallocated to the private sector between 2305 and 2310 MHz. The good news is that the FCC has agreed to allow the Amateur Service to maintain access to the segment on a secondary basis.

The new guidelines give WCS licensees wide flexibility to provide a broad range fixed, mobile, radiolocation and satellite sound broadcasting.

The WCS spectrum is located on either side of the 25 MHz of spectrum allocated for satellite Digital Audio Radio Service ("satellite DARS").

The new allocation provides for the award of two 10 MHz WCS licenses for each of 52 Major Economic Areas and two 5 MHz WCS licenses for each of 12 Regional Economic Area Groupings. All WCS licenses will be awarded by means of an electronic auction. WCS licensees will be permitted to partition their service areas into smaller geographic service areas and smaller spectrum blocks. WCS licenses will be for a term of 10 years.

Winning bidders for WCS licenses must designate the type(s) of WCS service(s) they will provide.

Their regulatory treatment will depend on these designations.

Small businesses and very small businesses will be awarded bidding credits of 25 percent and 35 percent.

#### Background

Just before the 104<sup>th</sup> Congress adjourned, Congress folded legislation into budget bill directing the Commission to "reallocate the use of frequencies at 2305-2320 megahertz and 2345-2360 megahertz to wireless services that are consistent with international agreements concerning spectrum allocations..." and to "assign the use of such frequencies by competitive bidding...."

The Appropriations Act also required the Commission to begin the bidding for the frequencies by April 15, 1997. The proceeds also had to be deposited to the U.S. Treasury by September 15, 1997. This was the first time that the U.S. Congress has ordered the FCC to reallocate specific radio spectrum and to sell the frequencies to the highest bidder.

Internationally, the 2300-2450 MHz band is allocated to fixed, mobile, and radiolocation services on a primary basis. In addition, the 2310-2360 MHz band is allocated to broadcasting-satellite service (sound) and complementary terrestrial digital audio

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broadcasting. Amateur radio is involved since the 2300-2310 MHz band is also allocated to the Amateur Radio Service on a secondary basis. This segment is available for use by any amateur station having a control operator who holds any class of amateur operator license, except Novice (Section §97.301a).

In the United States, the 2300-2310 MHz band was made available for exclusive non-Government use as of August 10, 1995. The 1993 Omnibus Budget Reconciliation Act (OPRA) required the National Telecommunications and Information Agency to identify 200 MHz of federal spectrum for reallocation to the private sector over fifteen years. The 2300-2310 MHz segment was part of the federal spectrum identified by the NTIA to be turned over to the private sector. Currently, the only non-Government use of this band is by the Amateur Service.

The 2310-2360 MHz band was recently reallocated to non-Government broadcasting-satellite service on a primary basis. The only broadcasting-satellite service permitted in the United States under this allocation is digital audio broadcasting delivered by satellite, commonly known as satellite DARS.

The FCC proposed last fall to allocate the 2305-2320 and 2345-2360 MHz bands to the fixed, mobile, and radiolocation services on a primary basis and to retain the current primary audio broadcasting-satellite allocation in the 2310-2320 and 2345-2360 MHz bands. The Commission did not propose to change the Amateur Radio Service secondary allocation of the 2300-2310 MHz band nor the secondary authorization that permitted aeronautical telemetry operations to use the 2310-2360 MHz band.

The ARRL supported the FCC's proposal for continued secondary amateur use of the 2305-2310 MHz band, but suggested that the Commission afford amateurs "...the interference protection and stability afforded by a primary allocation at 2300-2305 MHz."

The League said "...that, while the most significant amateur use of the 2300-2310 MHz band is around 2304 MHz for weak-signal experimentation, there are significant, diverse amateur operations throughout the band, including FM simplex and repeater operations, and fixed links." ARRL argued that "...a fixed, mobile and radiolocation allocation in the 2305-2310 MHz band makes continued amateur operations distinctly problematic in metropolitan areas."

On November 19, 1996, the League filed a Petition for Rule Making asking the secondary amateur service allocation at 2300-2305 MHz be upgraded from secondary to primary status.

On February 19, 1997, the FCC allocated the 2310-2320 and 2345-2360 MHz bands on a primary basis for fixed, mobile, radiolocation, and broadcasting-satellite (sound) service use and the 2305-2310 MHz band on a primary basis for fixed, mobile except aeronautical mobile, and radiolocation services. The new WCS licen-

sees themselves will determine the specific services they will provide within their assigned spectrum and geographic areas. Many firms have indicated that they are interested in offering a wide range of potential uses, including interactive, high-speed, broadband data services, such as wireless Internet access; return links for interactive cable and broadcasting service; mobile data; satellite DARS; fixed terrestrial use; new and innovative services; radiolocation; educational applications; and wireless local loop.

The FCC said that they had no reason to prefer some uses over others and that "...limiting the use as some have suggested would risk precluding potentially beneficial services. ...We believe that in this instance a flexible use allocation serves the public interest. Permitting a broad range of services to be provided on this spectrum will permit the development and deployment of new telecommunications services and products to consumers. Moreover, WCS licensees will not be constrained to a single use of this spectrum and, therefore, may offer a mix of services and technologies to their customers."

The FCC adopted their proposal to permit amateurs to continue to their use of the 2305-2310 MHz band on a secondary basis. "The effect of this action is that amateurs and aeronautical telemetry operations will be able to continue to use these bands so long as these operations do not interfere with WCS service," FCC said.

The FCC also updated and clarified the frequency sharing requirements for amateur use of the 2300-2310 MHz and adjacent bands. Section § 97.303(j)(1) informs the amateur community that amateur stations may not cause harmful interference to, nor are they protected from interference due to the operation of mobile stations authorized in Region 1 (this is in addition to fixed operations.) Section § 97.303(j)(2) is revised to better alert amateurs of their spectrum sharing responsibilities. The new rules read as follows:

## PART 97 -- AMATEUR RADIO SERVICE

1. Section 97.303(j) is revised to read as follows:

### § 97.303 Frequency sharing requirements.

\*\*\*\*\*

(j) In the 13 cm band:

(1) The amateur service is allocated on a secondary basis in all ITU Regions. In ITU Region 1, no amateur station shall cause harmful interference to, and shall be not protected from interference due to the operation of, stations authorized by other nations in the fixed and mobile services. In ITU Regions 2 and 3, no amateur station shall cause harmful interference to, and shall not be protected from interference due to the operation of,

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stations authorized by other nations in the fixed, mobile and radiolocation services.

(2) In the United States:

- (i) The 2300-2305 MHz segment is allocated to the amateur service on a secondary basis. (Currently the 2300-2305 MHz segment is not allocated to any service on a primary basis.)
- (ii) The 2305-2310 MHz segment is allocated to the amateur service on a secondary basis to the fixed, mobile, and radiolocation services.
- (iii) The 2390-2400 MHz segment is allocated to the amateur service on a primary basis.
- (iv) The 2400-2402 MHz segment is allocated to the amateur service on a secondary basis. (Currently the 2400-2402 MHz segment is not allocated to any service on a primary basis.) The 2402-2417 MHz segment is allocated to the amateur service on a primary basis. The 2417-2450 MHz segment is allocated to the amateur service on a co-secondary basis with the Government radiolocation service. Amateur stations operating within the 2400-2450 MHz segment must accept harmful interference that may be caused by the proper operation of industrial, scientific, and medical devices operating within the band.

## AMATEUR RADIO STATION CALL SIGNS

...sequentially issued as of the first of March 1997:

Radio District	Group A Extra	Group B Advanced	Group C Tech/Gen.	Group D Novice
0 (*)	AB0EI	KI0GY	(***)	KB0ZVS
1 (*)	AA1RU	KE1HF	N1YQD	KB1CCJ
2 (*)	AB2DG	KG2KE	(***)	KC2BAM
3 (*)	AA3PL	KE3YZ	N3YUC	KB3BSG
4 (*)	AF4BD	KU4DA	(***)	KF4PLM
5 (*)	AC5LN	KM5HI	(***)	KC5ZF1
6 (*)	AC6ZY	KQ6NE	(***)	KF6JGE
7 (*)	AB7UG	KK7FU	(***)	KC7UVG
8 (*)	AB8ZJ	KI8BD	(***)	KC8GGH
9 (*)	AA9TZ	KG9JO	(***)	KB9PRR
N. Mariana	NH0A	AH0AX	KH0GF	WH0ABG
Guam	(**)	AH2DC	KH2RM	WH2ANT
Hawaii	AH7Q	AH6PA	KH7CS	WH6DDQ
Amer. Samoa	AH8O	AH8AH	KH8DH	WH8ABF
Alaska	AH0D	AL7QT	KL0EC	WL7CUC
Virgin Is.	WP2Y	KP2CK	NP2JP	WP2AIH
Puerto Rico	KP3V	KP3AQ	NP3KP	WP4NMY

\* = All 1-by-2 & 2-by-1 call signs have been assigned.

\*\* = All 2-by-1 call signs have been assigned.

\*\*\* = All 1-by-3 call signs have been assigned.

New prefix numerals now being assigned in Puerto Rico (KP3/NP3), Hawaii (AH7/KH7) & Alaska (AH0 & KL0).

## NEW AND UPGRADING AMATEUR STATISTICS FOR THE MONTH OF FEBRUARY 1997

Amateur License Class	New Amateurs 1997	Upgrading Amateurs 1997	Total Amateurs 1997
Novice	100	0	100
Technician	1955	1	1956
Tech Plus	200	399	599
General	29	354	383
Advanced	7	294	301
Extra Class	11	231	242
Club/Unknown	101	0	101
Total:	2403	1279	3682

[Source: FCC Database, Washington, D.C.]

## FCC PROPOSES RULE AMENDMENT TO PROVIDE FOR GREATER USE OF SPREAD SPECTRUM

On December 12, 1995, the American Radio Relay League, Inc. (ARRL) filed a petition for rule making (assigned RM-8737) requesting that the rules be changed to allow amateur stations to transmit spread spectrum ("SS") type emission technologies employing additional spreading sequences. Spread spectrum is a radio communication technique that diffuses the radio signal energy over a very wide bandwidth, thereby using extremely low power density to exchange messages.

The League also suggested that each SS transmitter be required to incorporate a device to automatically limit its power to that actually necessary to carry out the communications. The ARRL believes that these rule changes would facilitate the ability of the amateur service to contribute to the development of SS communications.

The ARRL said that the benefits to be gained from increased use of SS include improvement in communications reliability, less interference to narrow band communications systems, and more efficient use of radio spectrum.

On March 3, 1997, the FCC released a *Notice of Proposed Rule Making* proposing to amend Section §97.305 and §97.311 of the Amateur Service rules to authorize amateur stations to make greater use of SS type emission. The NPRM basically adopts the ARRL proposal.

The FCC said "We believe that the proposed rule changes will allow amateur operators to develop innovations and improvements to communications products, and develop new communications technologies. We believe these proposed rule changes also would allow amateur operators more flexibility to use current and future communications technologies, encourage the amateur service community to expand its experimental activities with SS, and allow amateur stations to transmit SS type emissions that presently are transmitted by other communications devices. These proposed changes also are consistent with our general policy of allowing licensees flexibility to develop more effective and efficient uses of the radio spectrum."

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## Background

Spread spectrum is a technique whereby the energy of the transmitted signal is distributed over a wide segment of spectrum. The signal power density can be very low and the duration of a transmission on any frequency in the segment of the spectrum can be but a fraction of a second.

SS systems, therefore, can evenly share all of the spectrum in the available frequency segment, despite a number of stations transmitting simultaneously. They can often share the same spectrum unobtrusively with non-SS systems because the transmissions may not be noticeable to a casual listener.

Special Temporary Authority to experiment with SS transmissions was granted to 25 amateur stations affiliated with the Amateur Radio Research and Development Corporation (AMRAD) 16 years ago. These experiments involved on-air evaluation of different spreading rates, frequency ranges, and interference to stations transmitting other emission types.

On the basis of these tests, two types of spreading techniques -- frequency hopping and direct sequence -- were authorized by the FCC rules. Under current rules, SS transmissions may be made on authorized amateur service frequencies above 420 MHz with transmitter powers up to 100 watts.

Since introduction of SS in the amateur radio service, numerous commercial applications of SS have also evolved, including personal communications services, remote meter reading and position locating.

## Comments on the proposal

The Petition was placed on Public Notice January 26, 1996. In response to the Public Notice requesting opposing or supporting statements, the FCC received 32 comments and reply comments. The majority of comments supported additional SS communications because of the benefits that may come from experimentation, but suggested that SS be limited to specific spectrum segments of the amateur service frequency bands to protect stations engaged in other types of communication.

Some commenters opposed SS due to concerns that greater use of SS will result in interference to amateur stations engaging in satellite communications, weak signal terrestrial and Earth-Moon-Earth communications, and repeaters. In reply, the ARRL argued that the interference potential would not significantly increase because the rules already authorize SS on these amateur service bands.

The ARRL also pointed out that concern regarding interference to repeaters is unfounded because most repeater usage occurs on the amateur bands below 420 MHz.

Two commercial Part 15 interests, Metricom and Symbol Technologies, requested that new types of amateur SS transmissions in the 902-928 and 2400-2450 MHz amateur frequency bands be prohibited or alterna-

tively, that radiated power limits for new SS types be limited to those governing the unlicensed Part 15 devices with which these bands are shared.

Metricom, a service provider using unlicensed devices, acknowledged that spread spectrum experimentation accomplished in the amateur radio service enabled it to develop what it describes as its own technologically leading edge SS systems. However, Metricom also argued that increasing the flexibility for amateur operators to experiment with new types of spread spectrum designs in these two bands would disturb the balance in sharing these bands among different users.

Metricom expressed particular concern regarding the 902-928 MHz band, citing the recent *Report and Order* establishing rules for Automatic Vehicle Monitoring Systems. Metricom also is concerned that amateur operators will obtain commercial Part 15 SS devices and modify them for use under our Part 97 rules.

Symbol, a manufacturer of unlicensed devices that operate in these two bands, argued that the disparity between authorized power for amateur stations (100 watts with unlimited antenna gain) and authorized power for unlicensed devices (1 watt with 6 dBi antenna gain) will affect the operation of unlicensed devices in the vicinity of amateur stations.

In reply, the ARRL said that the potential for interference in these bands would not increase significantly because SS has been authorized at the proposed power levels for more than a decade. The ARRL went on to note, however, that in its petition it proposed to control power by requiring automatic transmitter power control to limit radiated power to that level necessary to maintain communications.

The ARRL acknowledged the underlying concern that amateur operators might purchase and modify commercial SS products. In response to this concern, ARRL said that even if this were to occur, interference would be unlikely because such products likely will be designed to use different spreading codes and sequences so that they will not interact with each other when used as unlicensed devices. ARRL further contended that this design feature will minimize interference whether used as unlicensed devices or as amateur stations.

Finally, the ARRL noted that the amateur radio service is a licensed service entitled to protection from interference, whereas unlicensed Part 15 devices have no interference protection rights under our rules and no domestic or international allocation status.

## FCC decision

The FCC agreed with the League stating that they believed that "...the amendments requested would increase spectrum efficiency and allow amateur operators to contribute to technological advances in communications systems and equipment. Experiments conducted by amateur operators have shown that stations transmitting SS emissions can co-exist with other amateur

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stations, and in many cases these spread spectrum emissions are undetectable by other amateur stations. SS publications in the amateur service community, and the comments of the ARRL, show that the effect of restricting amateur stations to using two spreading techniques has been to prevent amateur service licensees from incorporating into their operations technical advances that have been developed in other services. We agree that the current rule prohibits amateur stations from using SS emission types that are routinely used in other communication services, and that such a prohibition is inconsistent with the experimental purpose of the amateur service.

"As requested by the ARRL and Part 15 equipment providers, we propose to require that automatic power control circuitry which reduces the radiated power of an amateur station transmitting an SS emission to the minimum level necessary to conduct communications, be included in SS equipment.

"Additionally, we solicit comments, regarding other methods that are available to minimize any potential interference between amateur station operations and Part 15 devices. Accordingly, we tentatively conclude that these amendments are appropriate and consistent with the underlying purposes of the amateur service. We propose, therefore, to facilitate the desire of amateur operators to experiment with, develop, improve, and test practical SS systems.

"In view of the foregoing, we propose to amend the amateur service rules to allow amateur stations greater flexibility in transmitting SS communications. Specifically, we propose to eliminate the rules that restrict amateur stations to transmitting only frequency hopping and direct sequencing spreading techniques.

"These proposed rule changes are consistent with our policy of encouraging greater spectrum flexibility by enabling licensees to introduce innovative technologies and to respond quickly to demands for new and different services and applications, without administrative delays."

"...interested parties may file comments on or before May 5, 1997, and reply comments on or before June 5, 1997. To file formally in this proceeding, you must file an original and four copies of all comments and reply comments. If you want each Commissioner to receive a personal copy of your comments, you must file an original plus nine copies. You should send comments and reply comments to Office of the Secretary, Federal Communications Commission, Washington, DC 20554.

## PART 97 -- AMATEUR RADIO SERVICE

In Section 97.3, paragraph (c)(8) is proposed to be revised to read as follows:

### § 97.3(c)(8) Definitions.

- (a) \*\*\*
- (c) \*\*\*

(8) SS. Spread-spectrum emissions using bandwidth-expansion modulation emissions having designators with A, C, D, F, G, H, J or R as the first symbol; X as the second symbol; X as the third symbol.

\*\*\*\*\*

Section 97.305(b) is proposed to be revised to read as follows:

### § 97.305 Authorized emission types.

\*\*\*

(b) A station may transmit a test emission on any frequency authorized to the control operator for brief periods for experimental purposes, except that no pulse or SS modulation emission may be transmitted on any frequency where pulse or SS emissions are not specifically authorized.

\*\*\*\*\*

Section 97.311 is proposed to be amended by revising paragraphs (a) and (b) and redesignating paragraphs © and (d) as "Reserved" to read as follows:

### § 97.311 SS emission types.

(a) SS emission transmissions by an amateur station are authorized only for communications between points within areas where the amateur service is regulated by the FCC and between an area where the amateur service is regulated by the FCC and an amateur station in another country that permits such communications. SS emission transmissions must not be used for the purpose of obscuring the meaning of any communication.

(b) A station transmitting SS emissions must not cause harmful interference to stations employing other authorized emissions, and must accept all interference caused by stations employing other authorized emissions.

(c) Reserved.

(d) Reserved.

(e) \*\*\*\*\*

(f) \*\*\*\*\*

(g) The transmitter power must not exceed 100 W under any circumstances. If more than 1 W is used, automatic transmitter control shall limit output power to that which is required for the communication. This shall be determined by the use of the ratio, measured at the receiver, of the received energy per user data bit (Eb) to the sum of the received power spectral densities of noise ( $N_0$ ) and co-channel interference ( $I_0$ ). Average transmitter power over 1 W shall be automatically adjusted to maintain an  $Eb/(N_0 + I_0)$  ratio of no more than 23 dB at the intended receiver.

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## CUTTING EDGE TECHNOLOGY

- "The Next 30 Years," an article appearing in the journal of the non-profit *World Future Society*, says that:

"Wealth will increase due to rapidly improving technology throughout the world economy. ...Brought together by telecommunications, people around the world will work together more efficiently than ever before. Small producers will be able to serve distant markets. Expertise will flow easily and cheaply to places where it is urgently needed."

"Computers and cellular telephones will boost the productivity of real estate agents, plumbers, electricians and countless other workers."

"Training people to take advantage of the exciting opportunities ahead will be a major challenge. Fortunately, computers, telecommunications, CD-ROM, and other technologies can help educate people who traditionally have been hard to reach, such as people with disabilities or with jobs and family responsibilities."

"The new learning systems will probably not lead to unemployment among teachers. In fact, the demand for teachers will likely increase because the personal touch of teachers is vitally needed in guiding students in their development."

Compulsory education for adults as well as children is a likely development in the next 30 years." *The Futurist, March-April 1997.*

■ **Portable satellite pay telephones have been developed by Applied Satellite Technology of Surrey, England.** The Pay-SatPhone uses a solar-powered dish to route phone calls to a network of geostationary satellites. The pay phone is particularly useful in remote areas or where telecommunications have been disrupted by disaster or breakdown.

■ Latest IntelliQuest Survey counts 47 million American adults (age 16 and over) on the Internet and on-line services in fourth quarter 1996. This is a 34% growth from the first quarter. Only 10% are online 20 hours or more per week. 22.3 million primarily access from home, 13.3 million from work and 6.8 million from school. Electronic commerce is growing. (15% of all users purchased something online in the last month.) The 25-34 year old group has grown the quickest and now represents 30% of the online population. 11.7 million people

plan to begin using the Internet or an online service in 1997. Women now comprise 45% of the online population. Email and getting information about hobbies, products and services are the top activities of online users. (IntelliQuest is headquartered in Austin, TX with offices in Atlanta and London.)

■ **It is 11 p.m. Do you know where your grandmother is?** A Japanese publicly-funded research center has proposed setting up a network of pocket-sized radio transmitters to keep track of the elderly by GPS satellite tracking. Signals would be sent out every few minutes and plotted on a neighborhood map using the Global Positioning System.

■ **Heat the person rather than the house!** A report in the Dec. 18<sup>th</sup> issue of *New Scientist* tells about an experimental low cost home heating system that warms people by exciting the body's water molecules, thus raising body temperature.

"The microwave home heating test room contains a standard 800-watt transmitter to send microwaves into the room. The walls are lined with metal to reflect microwaves around the room, and giant metal blades "stir" the microwaves to prevent hot spots and ensure even heating."

The story also says that a side benefit is since microwaves can switch light bulbs on, the system could also be used for power-less and wire-less lighting! This ought to give the EPA, FCC, FDA, IEEE, ANSI, OSHA (and all those other acronyms) something to chew on.

## COMPUTER INFO

■ **Can't access the Internet because your kids are using an online service?** WebEtc, (a \$149 Windows software product) allows up to 20 network users to access the Internet at the same time over a single phone line using one modem! It also allows home users to link up an extra PC for simultaneous Internet access. (<http://www.microtest.com/webetc>)

■ **Do you know what retailer sells the most IBM "Aptiva" personal computers, RCA DirecTV satellite systems and cellular phones in the US?** Believe it or not, it is Radio Shack! Reason? They have 6,800 stores and more than a million people visit a Radio Shack every day. And did you know that the chain began in Boston in 1921 catering to ham radio operators and electronics hobbyists.

## INTERNET NEWS

■ **If you get an e-mail with the subject line "You have GOT to read this!" Don't!** McAfee Associates, the anti-virus software firm, has sent out an alert about a new macro virus called "ShareFun.A" which infects Microsoft Word documents on Windows and Macintosh platforms.

The virus makes a copy of itself and then checks to see if you are running Microsoft Mail. If so, the virus finds three people in your address book and sends them a copy.

■ The U.S. White House has been online for a couple of years. Now comes word that **England's Buckingham Palace will soon join the Web.** The 150-page Internet royal website has been a year in the making and is financed from the "Royal Household Publicity Budget." The website was unveiled by Queen Elizabeth at a London high school on March 6.

■ **Motorola will be selling VocalTec gateway server software that links corporate switchboards to Internet telephones.** Long distance -- and especially international -- phone and fax calls will then become toll free. Users need only dial a three-digit code to connect to the server ...and then dial an extension located anywhere in the world!

■ **Prisoners on the Internet** - At least two websites offer convicted prisoners behind bars the opportunity to communicate with the outside world over the Internet! "Inmate Classified" and "Cyberspace Inmates" both post snail-mailed personal classified ads and photos to the Internet. Inmates are not allowed direct access to computers or the Internet.

■ While we are on the subject, **convicted felons lose their right to vote - but not their ham radio license** (if they have one.) From 1963 to 1979, the FCC Form 610 application asked "Have you been convicted in Federal, state, or local court of any crime for which the penalty imposed was a fine of \$500 or more within 10 years previous to the date of this application." The statement was dropped because it apparently had never been used to revoke a license and it was determined that Amateur Radio provided important rehabilitation for persons re-entering society.

On the other hand, the *Communications Act* (Sec. §303m) authorizes the FCC to suspend or revoke amateur (or

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any) operator licenses if the licensee is found guilty of violating any telecommunications related crime. It doesn't have to be a ham radio violation!

■ **Trying to find an elusive E-mail, snail-mail, business or website URL address?** On February 25<sup>th</sup>, Excite, Inc., (Mountainview, CA) unveiled a new "WhoWhere" E-mail lookup and people finder database of more than 10 million Email and 70 million home/business addresses. (<http://www.whowhere.com>)

**Internet search engines are now accepting classified ads.** Yahoo has their own system, but others republish the ads from the "Classified2000" database. Check out: <http://www.classified2000.com>

**Perhaps the most interesting new search engine feature is called "Search Voyeur."** You can see what other surfers are entering into the Magellan search engine in real time! Twenty random posted entries change every 20 seconds! Most popular subject? You guessed it. Sex-related stuff. URL: <http://voyeur.-mckinley.com/voyeur.cgi> Even the Wall Street Journal did a story on "Search Voyeur" They said "...the spelling [of search words] is awful!"

■ **Pay your bills over the Internet!** CheckFree Corp., (Atlanta, GA) has introduced a new way to quickly and easily pay bills over the Web. Several big firms with recurring monthly invoices (such as telephone, gas/electric utility, mortgage, and insurance companies) post their invoices (in full color with logos, graphics and billing detail) to a central receiving website. Customers are notified by E-Mail that a new bill has arrived. Once the website is accessed, customers find an electronic check already filled out waiting to be signed. The transaction is completed with a simple mouse click! The new service is called "CheckFree E-bill." Cost is 25¢ each ...less than the cost of a postage stamp! It also saves utility companies big bucks, since it costs them about \$1.00 to prepare and mail a snail-mail invoice.

■ **Home banking for the rich!** A Swiss bank owned by the French Banque National de Paris is offering high tech banking and asset management with 24-hour a day account access over the Internet. Swiss banking secrecy laws attracts the very rich. More than \$1.8 trillion in private assets are under management in Switzerland.

■ **Targeted advertising coming to a chat room near you!** America Online,

Inc., plans to place advertising on company-sponsored discussion areas and chat groups! One quarter of all online usage involves interactive users "talking" back and forth!

■ **Nevada may be the first state to outlaw "spams."** A bill was introduced into the state legislature on Feb. 26<sup>th</sup> making it a misdemeanor to send unsolicited ads directly to E-mail accounts. It was modeled on a federal law which bans unsolicited advertising over fax machines.

## WASHINGTON WHISPERS

■ **The Internal Revenue Service will spend more than \$129 million during the next two years** reprogramming its computers so that they can recognize the year 2000. Its old computers can not distinguish the difference between the year 1900 and 2000. It will cost the US government more than \$2.3 billion to avert widespread "millennium crashes."

■ **A 1969 federal law bans cigarette ads from "any medium of electronic communication"** and the Food and Drug Administration gets broad new powers this summer to ban the tobacco industry from advertising to teenagers.

But the Brown and Williamson Co., (makers of Lucky Strike cigarettes) has found the totally unregulated Internet a safe haven. They sponsor a youth-oriented music site at <http://www.circuitbreak.com>. The only clue that the site is tobacco-sponsored is a questionnaire that includes a "Do you smoke?" question.

The form states that users must be at least 21 years old, though it doesn't say why there is an age restriction. People who answer "Yes" to the question are sent a T-shirt with a Lucky Strike logo.

Because the FDA lacks sufficient field staff, the agency will contract with states to enforce the new regulation. A toll-free number (1-888-FDA-KIDS) and an e-mail address (reachable through the agency's Internet pages at: <http://www.fda.gov>) is being established to field tips on violators.

■ **Spectrum for a new breed of radio broadcasting was approved by the FCC on March 3<sup>rd</sup>.** Top (CD) quality, nationwide satellite-delivered Digital Audio Radio Service (DARS) will likely be offered to the public within five years on a pay-to-listen basis. Subscription cost will be in the \$5 to \$10 a month range.

The broadcasting industry opposes the

new service saying that it poses a threat to local stations.

The new allocation clears the way for the FCC to auction off the needed spectrum to four different companies who have expressed an interest in offering satellite radio. Only two licenses will be awarded.

Consumers will have to purchase a new combination satellite/local broadcast receiver and small satellite dish antenna. The local broadcast industry also plans to eventually change to digital broadcasting.

■ **The FCC voted to permit police, fire and rescue public safety communications to all use the same frequencies.** The new "Interoperability" rules which permit a policeman to talk to a fireman in an emergency go into effect in six months.

## AMATEUR RADIO

■ **The FCC has a new toll-free (WATS) number for Amateur Radio license and new sequential and "Vanity" call sign inquiries.** The new number (1-800-225-5322 or 1-800-CALL FCC) is operated by the FCC's Compliance and Information Bureau (CIB) at their new National Call Center in Gettysburg, PA during normal business hours. Actually the public can call this number to obtain information on just about any subject involving the FCC.

■ **Amateur Radio changes and new privileges are coming to radioamateurs in the United Kingdom:**

1.) **The UK's Radiocommunications Agency (RA) has allocated the 71.6 kHz to 74.4 kHz (Low Frequency band) to radioamateurs.** This band is available on a license endorsement basis to Class "A" (requires Morse code) holders who want to investigate LF propagation. The following conditions apply: One watt ERP authorized and no mobile operation.

Two members of the headquarters staff of the Radio Society of Great Britain (RSGB) claimed three records on Feb. 14, 1997 when Mike G3XDV and Peter G3LDO made a CW contact over a 175-meter (about 600 feet) path at 1240 UTC.

- The first two-way contact on the UK 73 kHz band;
- The first portable operation on the band, and;
- The lowest frequency on which an amateur radio contact has ever taken

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place, anywhere in the world.

2.) **Where is M7A?** The RA also has approved a new special call sign policy for ham clubs participating in high frequency Amateur Radio contests. The idea is to authorize call signs as short as possible so more contacts can be made. The contest call signs will consist of a G or M, a regional locator (e.g. W for Wales, I for Ireland, etc.), a digit indicating the year (e.g. 7 for 1997) and a single selected suffix letter. Examples of new (HF use only) call signs: GW7A, G7B and MI7C. UK ham clubs must apply through the RSGB.

3.) The RSGB has been holding discussions with the Driver and Vehicle Leasing Agency (DVLA) that hopefully will lead to British amateur radio operators being able to get their call signs on their automobile license plates.

4.) UK amateurs will be turning down their FM deviation as **2-meter channel spacing in the UK changes to 12.5 kHz**. The change will take place over three years and must be completed by the year 2000. The UK presently uses 25 kHz channel spacing.

The change to narrow band FM was mandated at the IARU Region 1 Conference in Tel Aviv last fall. The current 145 MHz repeater band is full and going to 12.5 kHz channels will double the number of available channels. The change will ultimately be introduced throughout Europe.

■ **Will VA, VE, VO and VY become a prefix from the past?** Canadian amateurs are thinking about changing their call sign prefix from "V" to "C" to reflect Canada. Not all amateurs north of the border are in favor of it. Radio Amateurs of Canada (RAC) has formed a Call Sign Working Group (CSWG) and is studying wider use of the CFA-CKZ and CYA-CZZ ITU call sign assignments. It has caused quite a stir among Canadian amateurs who have had "V" prefixes since 1928!

■ **There is a very interesting (and high quality) Morse Code Translator on the Internet located at: <http://soton.ac.uk/~scp93ch/refer/morseform.html>** You merely input your text and the site plays it back through your soundcard in any of three audio formats at speeds from 5 to 40 wpm. The site belongs to Stephen Phillips of Nottingham, England.

■ **There is a multi-nation effort underway to get Amateur Radio on the International Space Station (ARISS).** The United States, United Kingdom, Can-

ada, Germany, France, Italy, Japan and Russia are all involved.

A Memorandum of Agreement has been prepared which addresses third party traffic and the various technical, administrative and legal issues involved among the eight participants. ARISS will coordinate ham radio activities aboard the international space station in much the same way that SAREX handles shuttle missions. All astronauts and cosmonauts will automatically become members of ARISS.

The International Space Station program has three distinct phases, each building on the one prior. Phase I (which is just about over) involves crew exchanges, joint space experience and research between the US and Russian crew aboard Mir.

During Phase 2, actual construction of the new International Space Station begins. Late this year, U.S. space shuttle and Russian rockets will begin launching space station hardware - built in the U.S., Russia and Canada - for assembly on orbit.

The space station will be 356 feet across and 290 feet long and will weigh nearly 500 tons! Up to seven people will ultimately live on the space station.

The first ISS element to be launched (in November 1997) is a 20-ton U.S.-funded propulsion, command and control system being built in Russia. The first U.S. built part (a pressurized habitation module) is being launched to the space station in December. The U.S. prime contractor is Boeing.

Canada is providing a 55-foot long robotic arm. The European Space Agency is building a pressurized laboratory. Italy is providing a logistics system to resupply the ISS. Japan is also building a laboratory with an attached exposed facility. Russia is providing research, life support, and habitation modules, the power system ...and the Soyuz spacecraft for crew return and transfer.

U.S. involvement in the space station will cost about \$2 billion a year. It is expected that by May 1998, a three person crew will be able to permanently live and work on the space station.

There is talk that there could be a delay in getting Phase 2 off the ground since Russia is having difficulty in completing a later-needed space station part.

When the Phase 2 missions end (theoretically in March 1999) the evolving space station will be ready to support continuous scientific research. And Amateur Radio will be a part of it.

■ **The FCC has reclaimed six "Van-**

ity" call signs that it had previously issued.

A February 27<sup>th</sup> Public Notice said that the call signs were surrendered or taken back from licensees who were not eligible for them. The relinquished calls are:

WØAW Cen. Minn DX Assn./Verndale, MN  
W3RO Frank L. Rose/Bowie, MD  
W4CC Chester T. Alderman/Vienna, VA  
W4ART Arthur H. Feller/Fairfax, VA  
W7MT Morton R. Toussaint/Milwaukee, OR  
K7JW DX Radio Club/Rochester, WA

They will be available for reassignment on March 27, 1997.

■ **Ham operator files for vacant congressional seat.** Texas governor George Bush has called a special election to fill the vacancy created by the recent death of Representative Frank Tejeda. U.S. Congressional District 28 includes San Antonio and South Texas. One of the candidates for the House seat is John A. "Drew" Traeger, KC5SLW, 46 of Seguin, Texas. Drew is also Vice President of the Chaparral Amateur Radio Club of Seguin.

A realtor by trade, Drew is a retired Major in the U.S. Army and once served as admissions officer for the United States Military Academy at West Point. The special election is scheduled for March 15.

■ **Tom Seale, KH6JCY (Executive Director of the American Chamber of Commerce in Thailand) sent us two news articles concerning Morse code.**

One Associated Press release with a Paris, France dateline headlines "**Morse Code on death bed. Final use scheduled for Feb. 1999.**" It tells how French maritime radio authorities on the Atlantic coast will be sending their last message in Morse code soon and thereafter shut down the 160-year-old system in favor of satellite communications.

Only 100 CW messages were sent last year from the maritime communications center at Conquet on the western tip of France and "The last SOS, the world's best known emergency call, was received by the station in 1990."

The other news article sent by Tom Seale carries a Wellington, New Zealand AP Feb. 23<sup>rd</sup> dateline. It tells how **25 survivors adrift in life rafts in the Pacific Ocean sent a Morse code distress message by torch to a Quantas jet overhead.** Those adrift were aboard a ferry and trading ship which caught fire northwest of the Cook Islands. The aircraft dropped a radio and medical supplies. A Russian ship was diverted to pick them up.

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## IANA SUED AS IAHC RECOMMENDS SEVEN NEW gTLD NAMES AND TWENTY-EIGHT REGISTRIES.

*Private Internet domain names coming to a site near you!*

If that headline sounds like gibberish and leaves you confused, join the crowd! Internet gurus just love to compress organizations and their activities into pseudonyms. It is almost getting to the point where only they understand their language and what they do.

Want your own private Internet domain? Individual names like Bob Smith currently do not fall into any of the existing categories, but this will change. An address ending with ".bobsmitn.nom" should shortly be available. It is all on the fast track. A three month timetable has been set to get the new domain names into operation.

One of the most explosive issues on the Internet – and one that impacts every user – is their address. Like ham radio call signs, an Internet address becomes the name and location of the "operator." It also is the access route to your node (computer) on the network.

An Internet address reads from right to left with the "gTLD" (generic Top Level Domain) being first. There are currently six top level domains: .edu (academic), .gov (governmental), .com (commercial), .net (Internet gateways), .mil (military sites) and .org (private organizations, foundations and associations - usually non-profit.). Second from the right in an address comes the SLD (second-level domain.) Examples of SLDs include fcc.gov, mit.edu, aol.com, arrl.org and navy.mil.

IP (Internet Protocol) addresses (individual nodes) are actually a series of four numbers (from 0 to 255) separated by dots which relates to a specific human-friendly name alias which is easier to remember. Domain names are Internet "addresses" -- and the registration process creates a database which maps the names to the machine numbers used for Internet routing. This is known as the Domain Name System (DNS).

Think of the system as being similar to FCC-assigned sequential amateur station call signs and "Vanity" user-selected call sign system. Up until 1993, the National Science Foundation (NSF) maintained the database which related the IP numerical address to the alias name.

In 1993, the NSF off-loaded the assigning of second level ("Vanity") Internet Domain Names to Network Solutions, a private company in Herndon, VA. InterNIC, as they are known, assigns second-level domain (SLD) names to five of the six gTLDs. (Military addresses are handled by the Dept. of Defense.)

There are also many other home-brewed domain name registries that compete with InterNIC and somehow they get their SLD and gTLDs recognized. Examples of unauthorized TLDs include .800 (toll free promotions), .auto (automobiles), .biz (businesses), .corp (corporate, alternative to .com), .exp (experimental), .fam (family), .inc (incorporated, alternative to .com), .law

(legal related), .mall (shopping mall), .med (medical), .post (postal or e-mail related), .tour (tourism and travel), .web (WWW related) .sex and .xxx (pornographic).

There are many others and these unapproved "experimental" TLDs do not work universally.

InterNIC was authorized by the NSF to dole out SLDs at a time when about 400 new second level domains were being registered per month. A year later it was 2,000. By 1995 it skyrocketed to 20,000 a month!

It seems that everybody was trying to get their own second-level Internet "Vanity" callsign. There was no cost and anything goes since there are no rules on the Internet. (The non-profit Internet Society promotes growth of the Internet but does not regulate it.)

People, networks, companies and organizations were asking for and registering dozens of different names at a time ...a practice not unlike ham clubs applying for multiple station call signs. It was possible for a company (like Proctor and Gamble) to have an Internet domain name for each of its products ...and any other related or unrelated name for that matter.

The practice of accumulating, warehousing, leasing and selling Internet second-level domain names is referred to as "cybersquatting." Since no one has any regulatory authority on the Internet, it is legal to apply for a name like "golf.club.com" and lease or sell it to a member of the golf industry at a profit. Some firms snap up names with the idea of preventing a competitor from using them.

## **NSF privatizes domain name assignment**

As interest and privatization of the Internet mushroomed beyond belief, the NSF was no longer able to fund the second-level registration process. It became worse than CB radio in the 1970s!

The NSF decided that effective Sept. 14, 1995, new "Vanity" second-level Internet domain addresses for the three of the five gTLDs (.com, .net and .org) would be \$50 annually with a two year minimum. And existing domains would be charged \$50 annually on the anniversary of their initial registration. The funding represented still another step in the move to make the Internet self-supporting and less reliant on tax dollars for support.

Those fees do not affect the typical end-user, however, who subscribes through a commercial service such as CompuServe, Prodigy and American Online nor do they impact campus, home or business users who access a local ISP (Internet Service Provider) network from their desktop. The NSF continues to defray the costs of registration in the .edu and .gov TLDs.

## **More gTLDs needed**

Like toll free "800" numbers, there are not enough easy-to-remember Internet top-level domain names to satisfy the demand. The International Ad Hoc Committee (IAHC) was formed from a consortium of eleven

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Internet organizations last October at the initiative of the Internet Society, and at the request of IANA (the Internet Assigned Numbers Authority) which is responsible for top level domain names. Donald M. Heath, the CEO of the Internet Society also serves as chairman of IAHC.

The Committee was tasked with coming up with additional general class TLDs due to the explosive commercialization of the Internet. A complicating factor is that the human-friendly quality of domain name strings have also made them commercially very valuable.

The IAHC began work in November and released their final report last month. The IAHC has now come up with an opening set of seven gTLDs. The original IAHC plan called for 150 new top level domain names. Our understanding is that more gTLDs are to be added next year.

## THE NEW GENERIC TOP LEVEL DOMAINS (gTLDs)

.firm	-- for businesses, or firms
.store	-- for businesses offering goods to purchase
.web	-- for entities emphasizing activities related to the World Wide Web
.arts	-- for entities emphasizing cultural and entertainment activities
.rec	-- for entities emphasizing recreational/entertainment activities
.info	-- for entities providing information services
.nom	-- for those wishing individual or personal nomenclature, i.e., a personal nom de plume

An eighth TLD, ".int" (which would not be considered as generic) would be reserved for organizations which are truly international in scope. It would be administered by the International Telecommunication Union (ITU).

The IAHC also wants increased use of the two letter country code in the addressing scheme. (such as "fr" for France, "ca" for Canada, "au" for Australia, "us" for United States, etc.) The country code would be inserted in newly assigned addresses after the TLD. For example, our web address would be <http://www.w5yi.org.us>

## InterNIC monopoly to end

InterNIC's contract with the National Science Foundation expires in 1998. The IAHC has also voted to increase the number of official domain-name registrars in 1998 from one to twenty-eight organizations. Their job is to register second-level domain names. InterNIC will still control the valuable ".com" domains ...at least until their contract with the NSF runs out.

Up to four qualified applicants will be selected from each of the World Trade Organization's seven global regions to assign all other domain names. The idea is to

create competition among the Registrars. And it is anticipated that lower than \$50 registration costs will ultimately develop. A non-profit organization based in Switzerland called CORE (for Council Of REregistrars) will manage the activities of all generic registrars.

The registrar rights are non-transferable and will be selected by lottery. Each application to become a Registrar must be accompanied by a \$20,000.00 fee which will be refunded if the applicant is found to be not qualified or not selected in the lottery process. Each of the four applicants must commit to sharing domain names from a single database. The requirements to become a Registrar are stiff and include:

1. Having a detailed business and marketing plan;
2. Complying with standard accounting practices;
3. Carrying adequate disability and liability insurance;
4. Having sufficient liquid capital available;
5. Having a staff with previous network operations and large scale transaction processing experience.

Each Registrar will be required to operate a customer support help-desk 7 days a week; 24 hours a day. Technical requirements include use of uninterruptable power supplies, robust backup procedures and adequate disaster recovery plans.

The nagging question, however, is who gets to use a specific commonly trade-marked SLD word. Legal battles continue to rage over the rights to such words as "national", "flowers", "standard", "aetna" or "apple." The IAHC recommends that the World Intellectual Property Organization's Arbitration and Mediation Center make that determination.

## Law suit filed

A California man has filed a lawsuit in San Luis Obispo Country Superior Court seeking to stop the IAHC plan that would add the seven new top-level domain names to the Internet.

Christopher Ambler, 29, president of web page design firm, Image Online Design, Inc., says that the IANA (the Internet Assigned Numbers Authority) promised him the rights last July to sell the new ".web" extension for \$25 each.

He has been registering domain names ending with ".web" since last August -- two months before the formation of the IAHC. Under the new policy, Ambler will no longer be the sole distributor of the ".web" domain. If Ambler fails to make the cut in the lottery to select registrants, his registry could soon be worthless.

Both the IANA and the IAHC were named as defendants. Internet Society president, Donald Heath says no one has property rights to any of the new domain names.

AlterNIC, another of the renegade domain-name firms from Bremerton, Washington, also plans to apply to become a sanctioned registrar.